FDA-Approved Agents for Treatment of MDS: Drug Profiles and Safety Guidelines

	Azacitidine	Decitabine	Lenalidomide
Indication	All 5 FAB subtypes (RA*, RARS*, RAEB, CMML, RAEB-T)	Int-1/Int-2 /high risk per IPSS As well as tMDS	Transfusion dependent MDS Low-Int-1 MDS with del(5q) with or without additional chromosomal abnormalities
Therapeutic Target	DNA methyltransferase inhibitor RNA and DNA Proteins and microenvironment	DNA methyltransferase inhibitor DNA specific Direct cytotoxic effect	Immunomodulatory drug (IMiD®) Del(5q): direct cytotoxic effect on the clone Non-del(5q): target the microenvironment
Sensitivity	No data on use after decitabine failure	May be effective in patients previously treated with Vidaza	Most effective in patients with del(5q) Activity has been demonstrated in non-del(5q) patients
Primary Endpoints Met (IWG)	**Improved Overall Survival** Hematological improvement (trilineage) Transfusion independence Cytogenetic response Safety and efficacy	Hematological improvement (trilineage) Transfusion independence Cytogenetic response Safety and efficacy	Hematological improvement Transfusion independence Cytogenetic response Efficacy and safety
Common Adverse Events and Treatment Considerations	Myelosuppression is most common Injection site reactions Nausea and vomiting Constipation Contraindicated in patients with hepatic tumors Use with caution in renal impairment May cause fetal harm	Myelosuppression is most common Nausea and vomiting Constipation Hyperbilirubinemia Use with caution in renal impairment May cause fetal harm	Myelosuppression most common Rash Diarrhea Requires renal dose adjustment Nonteratogenic in animal studies Analog of thalidomide Must be prescribed through Revassist program
Mode of Use	SC or IV x 7 days Every 28 days Outpatient regimen Treat until unacceptable toxicity or disease progression	IV daily for 5 days over 1 hour every 28 days Treat until unacceptable toxicity of disease progression	10 mg orally days 1-21 every 28 days or daily Treat until unacceptable toxicity of disease progression

Kurtin and Demakos. *Clin J Oncol Nurs*. 2010;14:3.

Scott and Deeg. *Annu Rev Med*. 2010;53:345-358.

Kurtin. *Oncology(Williston Park)*. 2007;21(11 Suppl Nurse Ed).

Renal Dosing for Lenalidomide

1. Lenalidomide is primarily excreted unchanged by the kidney
   a. Patients with normal renal function ($CL_{cr} \geq 60$ mL/min)—the recommended starting dose is 10 mg/day taken with water
   b. Dose adjustments are recommended for $CL_{cr} \leq 60$ mL/min—based on National Kidney Foundation criteria
2. Because elderly patients are more likely to have decreased renal function, it may be useful to monitor renal function

Moderate renal impairment ($30 \leq CL_{cr} < 60$ mL/min)	5 mg every 24 hours
Severe renal impairment ($CL_{cr} < 30$ mL/min, not requiring dialysis)	5 mg every 48 hours
End-stage renal disease ($CL_{cr} < 30$ mL/min, not requiring dialysis)	5 mg 3 times/week following each dialysis

3. These recommendations are based on a pharmacokinetic study in patients with renal impairment due to nonmalignant conditions

4. Dosage should be continued or modified based on clinical or laboratory findings

National Kidney Foundation. KDOQI Clinical Practice Guidelines @ http://www.kidney.org/Professionals/kdoqi

Revlimid prescribing information @ https://revlimid.com

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